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## CACTUS and SUCCULENT SOCIETY of NEW MEXICO

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(The following was excerpted from an article by Joyce Buckner, which was printed in the *Espinaz y Flores*, newsletter of the San Diego C&SS, in 1999.)

### **USING CACTI AND SUCCULENT PLANTS AS MINIATURES**

Miniatures may be preferable for many because of space or weight issues. There is a wide range of very interesting plants—both in cacti and succulents—that qualify in this category (size of pot under 3 inches). Miniature bonsai pots can be used for effective displays.

Selection of appropriate plant material is the first process in creating miniatures. There are two basic categories of succulent plant species that can be grown as miniatures: (1) *Genetics*: succulent plant species that remain small even in nature, or have been horticulturally selected or hybridized to create a dwarf or smaller growing variety. (2) *Containment & Culture*: plants that adapt well and grow “smaller” when their roots are restricted—as miniature. Plants listed at the end of this article that fit into this category are marked with an \*.

The containment process requires a certain degree of patience and commitment. You may need to keep a plant alive and healthy for many years in a highly contained environment before its foliage becomes small enough for it to qualify as a miniature. In greenhouses, searching for the very smallest specimen of a mature or maturing plant, instead of the normal “bigger is better” is a good buying strategy.

The primary key to successful cultivation of succulent plants consists of watering at correct intervals and/or during proper seasons. When watering, plants should be drenched thoroughly. With these very small plants it is best to spray/mist—sometimes twice a day during hot summer months. Placing miniatures in a wash basin or bowl full of water is a good way to water thoroughly so as to not disturb what little soil there is. At every third or fourth misting/watering, the accumulated salts should be leached in this manner.

Keep plants much drier when they are dormant and during cold weather. Dormant miniatures should be placed in a shady, dry, protected area. Many cacti, especially those growing outdoors, require very little or no water through the winter months or whenever the possibility of frost exists.

Potting miniature plants can be a very delicate procedure. I use chopsticks to pack the soil in and around the plant. I also keep on hand a finely pointed pair of manicure scissors, wooden toothpicks, and tweezers for use when potting and grooming. Additionally, a small glob of wax or putty (I use “Earthquake” wax or putty available in California where fine china is sold) used to secure your plant in place can save you immeasurable heartache. Just the slightest bump or jar or slightly heavy wind can send tiny precious plants and pots flying.

Soil mixes for miniature succulents should drain quickly, retain moisture, and act to hold the plant securely in place. Since plants and containers are so small, I recommend screening your potting soil and Perlite so that only the smaller components are utilized. Those little plastic scoop-spoons that come in cans of ground coffee work great for putting soil and topping into small pots. You should also screen the soil topping or utilize a sand mix for topping. Topping is not “just for show” with miniatures; it helps keep the soil and the plant in place, protecting the roots from sun and the stem and/or caudex from too much moisture. Many cacti thrive in sandy quartz with little or no soil utilized.

Miniature plants should be moderately pot bound. Roots typically seek heat and aeration as well as moisture. The pot bound condition is preferable because with an over-potted (pot too large for plant) plant, the soil can remain cold and wet for extended periods. Also, be careful not to set containers in a saucer or on another surface that fails to drain sufficiently. A quarter of an inch of sitting water in a saucer will not affect larger plants, but it can drown a miniature. This is how rot happens.

Fertilizing miniature container plants is best done minimally. You may add a weak solution of plant food at every second or third watering. Succulents approaching and during their dormant period should not be fertilized. (The cessation of a plant's growing season is often indicated with flowering and seed or fruit production.) Carefully read fertilizer labels—different fertilizers' ratios may be used to promote either foliage or flower production. **Dilute, dilute, dilute**—more is not better! Even a little too much fertilizer can “burn” a plant, causing much damage and often death.

As with other plants, cacti and succulents are prone to occasional attacks by various harmful insects and diseases, and because of their tiny nature are vulnerable, especially to snails and slugs. Keep your miniatures in a protected area that you inspect regularly. Many pests can be removed manually, and I have found that a few drops of a castile soap, such as Dr. Bronner's Peppermint Soap, in the spray discourage aphids and the like. Please use pesticides responsibly.

The following is a list of some of the succulent species that can be grown as miniatures. Most of the plants listed here have been shown in a miniature setting.

<i>Adenium obesum</i> *	<i>Fockea edulis</i> *
<i>Aeonium sedifolium</i>	<i>Frailea asteroides</i>
<i>Agave filifera compacta</i>	<i>Frailea magnifica</i>
<i>Aichryson bethencourtianum</i>	<i>Gasteria brevifolia</i>
<i>Aloe descoingsii</i>	<i>Haworthia maughanii</i>
<i>Aloe sinkiana</i>	<i>Haworthia truncata</i>
<i>Anacampseros filamentosa</i>	<i>Hereroa dyeri</i>
<i>Anacampseros rufescens</i>	<i>Kalanchoe rotundifolia</i>
<i>Anacampseros telephistrium</i>	<i>Kalanchoe rhombopiosa</i>
<i>Anacampseros quinaria</i>	<i>Kalanchoe thyrsiflora</i> *
<i>Ariocarpus kutschoubeyanus</i>	<i>Mammillaria yaquensis</i>
<i>Astroloba herrei</i>	<i>Mammillaria fragilensis</i>
<i>Beaucarnea recurvata</i> *	<i>Mestoklema tuberosa</i>
<i>Bergeoanthus</i>	<i>Monanthes muralis</i>
<i>Cephalocereus senilis</i> *	<i>Monanthes polyphylla</i>
("Old Man Cactus")	<i>Monvillea spegazzinii</i>
<i>Ceraria pygmaea</i>	<i>Nananthus transvaalensis</i>
<i>Ceropegia rendalli</i>	<i>Operculicarya decaryi</i> *
<i>Ceropegia woodii</i>	<i>Opuntia microdasy</i>
<i>Crassula corymbulosa</i>	<i>Ssp. rufida</i>
<i>Crassula lycopodioides</i>	<i>Pedalanthus tithymalioides</i>
<i>Crassula nealeana</i>	<i>Pediocactus knowltonii</i>
<i>Crassula schmidtii</i>	<i>Peperomia columella</i>
<i>Crassula susannae</i>	<i>Portulacaria afra variegata</i> *
<i>Dudleya greenii</i>	<i>Portulacaria molokaiensis</i>
<i>Echeveria lilacina</i>	<i>Scilla violacea minima</i>
<i>Euphorbia capst medusae</i> *	<i>Sedum furfuraceum</i>
<i>Euphorbia hedyotoides</i>	<i>Sedum multiceps</i>
<i>Euphorbia actinoclada</i>	<i>x Cremnosedum</i>
<i>Euphorbia milii</i>	"Little Gem"*
("Crown of Thorns")	<i>Sempervivum arachnoideum</i> *
<i>Euphorbia decaryi</i> *	<i>Sempervivum tectorum</i>
<i>Euphorbia platyclada</i>	<i>Senecio citriformis</i>
<i>Faucaria tuberculosa</i>	<i>Senecio haworthii</i>
<i>Fenestraria aurantiaca</i>	<i>Sinningia leucotricha</i>
<i>Ficus palmeri</i> *	(African Violet family)
<i>Ficus periolaris</i> *	<i>Turbinicarpus kranzianus</i>
<i>Ficus glumosa</i> *	<i>Titanopsis calcarea</i>
<i>Fouquieria macdougallii</i> *	<i>Tylocodon schaeferianus</i>